

ACKNOWLEDGEMENTS

ANNUAL REPORT ON DESTRUCTIVE AVALANCHES

The National Reporter wishes to acknowledge the
CANADA 1977
invaluable assistance of the following individuals in
providing information for this report.

P.A. Anhorn, Dr. R.I. Perla, P.A. Schaerer, C. Stetham
and Dr. E. Whalley.

REMERCIEMENTS

by/par

Le rapporteur national tiens à exprimer sa
reconnaissance et ses remerciements aux collaborateurs,
qui sont identifiés ci-dessous, pour l'information et
les données dans ce rapport:

P.A. Anhorn, Dr. R.I. Perla, P.A. Schaerer, C. Stetham
et Dr. E. Whalley.

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Inland Waters Directorate
Fisheries and Environment Canada
Ottawa, Ontario, K1A 0E7

Division de la glaciologie
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Ottawa, Ontario, K1A 0E7

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et Dr. E. Whalley.

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION
Department of Environmental Sciences
ANNUAL REPORT ON DESTRUCTIVE AVALANCHES

COUNTRY: CANADA Winter 19.76/19.77 Sheet No. 1 of 2
Name and address of reporter: C. S. L. Ommanney, Environment Canada, Ottawa, Ontario, K1A 0E7

Serial number	Date	Location	Category*	Number of deaths	Number of injured	Damage	Remarks
77-01	15/02	Banff National Park, Alta	T	1	0		Ski-touring
77-02	16/03	Diana Lake, B.C.	T	1	0		Helicopter skiing
77-03	17/03	Bugaboo Range, B.C.	T	3	0		Helicopter skiing
77-04	19/03	Banff National Park, Alta	T	1	0		Snow shoeing and mountaineering
77-05	21/03	Penticton, B.C.	T	1	1		Downhill skiing
77-06	27/03	Banff National Park, Alta	T	1	4		Ski and helicopter touring
77-07	30/03	Banff National Park, Alta	T	1	0		Downhill skiing
77-08	30/07	Mt. Robson, B.C.	T	0	2		Mountaineering

* For accident to tourists, mark T; to people at work, mark W; to residents, mark R; to communications (roads, railways), mark C.

Note: This form should be completed in duplicate at the end of each winter season; and sent, together with the reports on individual avalanches, to the following address:

The Director
Department of Environmental Sciences
Unesco
Place de Fontenay

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION
Department of Environmental Sciences
ANNUAL REPORT ON DESTRUCTIVE AVALANCHES

COUNTRY: CANADA		Winter 1977/1978		Sheet No. 2 of 2			
Name and address of reporter: C.S.L. Ommanney, Environment Canada, Ottawa, Ontario, K1A 0E7				Damage, KIA OE7			
Serial number	Date	Location	Category*	Number of deaths	Number of injured	Damage	Remarks
77-09	09/10	Yoho National Park, B.C.	T	1	0		Mountaineering

* For accident to tourists, mark T; to people at work, mark W; to residents, mark R; to communications (roads, railways), mark C.

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Unesco
Place de Fontenoy
Paris 7e (FRANCE)

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

Department of Environmental Sciences

Report on Destructive Avalanche

COUNTRY: CANADA

Winter 1976/1977

Serial No.: 77-01

Name and address of reporter: C. Simon L. Ommanney, Glaciology Division, Inland Waters
Directorate, Fisheries & Environment Canada, Ottawa, Ontario, K1A 0E7

LOCATION: (Name of district, nearest town or village, mountain area, avalanche path)

Banff National Park, Parker Ridge

Latitude: 52° 12' Longitude: 117° 9' Altitude: 2800 m

DATE: 15 February 1977; Time: 1500 = 2200 (GMT)

DATA ON AVALANCHE:

Type (International classification): A4, B3, C1, D1, E2, F2, G1, H1

Orientation: NE

Dimensions*

Starting zone: Altitude: 2100 m Width: 20 m Depth of fracture: 1.0 m

Avalanche path: Length: 60 m Width: 20 m Average slope: 30°

Deposit: Maximum depth: 1.5 m Volume: not observed

Causes

Snow structure: Surface hoar below settled snow with rounded grains

Weather (snowfall, wind, temperature): Clear skies, temp. approx. 0° C

Triggering mechanism (if known): skier (victim)

CASUALTIES AND DAMAGE:

Number of persons killed: 1; injured: -; rescued unharmed: -

Damage to buildings (type, number, degree of destruction): -

Other damage (forests, communications, etc.): -

REMARKS (rescue work, former history of avalanches, etc.)

Party members attempted to locate the victim by digging but no probing was
carried out until a trained rescue party arrived at 1730 hrs. Another skier
was killed on the same slope in 1967.

Attach photographs and/or sketches if possible.

*Please use metric system

Note: This form should be completed as soon as possible after the event and, after checking by the national reporting centre, be sent, in duplicate, together with the corresponding annual avalanche report, to the following address:

The Director,
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UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

Department of Environmental Sciences

Report on Destructive Avalanche

COUNTRY: CANADA

Winter 1976/1977

Serial No.: 77-02

Name and address of reporter: C. Simon L. Ormanney, Glaciology Division, Inland Waters
Directorate, Fisheries & Environment Canada, Ottawa, Ontario, K1A 0E7

LOCATION: (Name of district, nearest town or village, mountain area, avalanche path)

Brisco Range, Rocky Mountains, Diana Lake

Latitude: 50° 56' N Longitude: 116° 13' W Altitude:

DATE: 16 March 1977 Time: 1515 hrs = (GMT)

DATA ON AVALANCHE:

Type (International classification): A2, B3, C1, D2, E1, G1 Orientation:

Dimensions*

Starting zone: Altitude: Width: Depth of fracture:

Avalanche path: Length: 400 m. Width: 45-60 m Average slope:
2 m

Deposit: Maximum depth: Volume:

Causes

Snow structure: Depth hoar with recently deposited new snow

Weather (snowfall, wind, temperature): Heavy snowfall on morning of 16th ended at approx. 1300 hrs

Triggering mechanism (if known): Probably ski party; fracture occurred on an adjacent slope
above the skied gully.

CASUALTIES AND DAMAGE:

Number of persons killed: 1; injured: none; rescued unharmed: 2

Damage to buildings (type, number, degree of destruction):

Other damage (forests; communications, etc.):

REMARKS (rescue work, former history of avalanches, etc.)

The victim was a member of a party of 12 skiers. Victim carried a rescue transceiver
and was located approx. 20-25 minutes following the accident. Victim was buried
under approx. 1 m of snow and showed no visible signs of life when located. Party
was taking their first run from the helicopter when the accident occurred.

Attach photographs and/or sketches if possible.

*Please use metric system

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reporting centre, be sent, in duplicate, together with the corresponding annual avalanche report, to the
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Department of Environmental Sciences,

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

Department of Environmental Sciences

Report on Destructive Avalanche

COUNTRY: CANADA Winter 1976/1977 Serial No.: 77-03
Name and address of reporter: C. Simon L. Ommanney, Glaciology Division, Inland Waters
Directorate, Fisheries & Environment Canada, Ottawa, Ontario, K1A 0E7

LOCATION: (Name of district, nearest town or village, mountain area, avalanche path)
Purcell Mountains, Bugaboo Area, Groovy run
Latitude: 50° 42' N Longitude: 116° 38' W Altitude:

DATE: 17 March 1977 Time: = (GMT)

DATA ON AVALANCHE:

Type (International classification): A2, B3, C1, D1, E2, G1
Orientation: North

Dimensions*

Starting zone: Altitude: 2200 m Width: 150 m Depth of fracture:
Avalanche path: Length: 300 m Width: 150 m Average slope: 35°
Deposit: Maximum depth: Volume:

Causes

Snow structure: Depth hoar with recently deposited new snow
Weather (snowfall, wind, temperature): No information
Triggering mechanism (if known): skier

CASUALTIES AND DAMAGE:

Number of persons killed: 3 ; injured: none ; rescued unharmed: none
Damage to buildings (type, number, degree of destruction):
Other damage (forests, communications, etc.):

REMARKS (rescue work, former history of avalanches, etc.)

The victims were members of a party of 11 skiers. The avalanche run out in
a depression and covered the victims with 3 m deep snow. The victims were
recovered 90 minutes after burial

Attach photographs and/or sketches if possible. * Please use metric system

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reporting centre, be sent, in duplicate, together with the corresponding annual avalanche report, to the
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UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

Department of Environmental Sciences

Report on Destructive Avalanche

COUNTRY: CANADA

Winter 1976/1977

Serial No.: 77-04

Name and address of reporter: C. Simon L. Ommanney, Glaciology Division, Inland Waters
Directorate, Fisheries & Environment Canada, Ottawa, Ontario, K1A 0E7

LOCATION: (Name of district, nearest town or village, mountain area, avalanche path)

Banff National Park, West face Bow Peak

Latitude: 51° 40' N Longitude: 116° 32' W Altitude: 2860 m

DATE: 19 March 1977; Time: 1800 = 0100, 20 March (GMT)

DATA ON AVALANCHE:

Type (International classification): A4, B3, C1, G1 Orientation: West

Dimensions*

Starting zone: Altitude: 2800 m Width: 25 m Depth of fracture: 1.5 to 2 m

Avalanche path: Length: 300 m Width: 80 m Average slope: 35°

Deposit: Maximum depth: 4.5 m Volume: large

Causes

Snow structure: Surface hoar overlain by old settled snow

Weather (snowfall, wind, temperature): sky overcast, temperature estimated - 15° C

Triggering mechanism (if known): glissading mountain climber

CASUALTIES AND DAMAGE:

Number of persons killed: 1; injured: -; rescued unharmed: -

Damage to buildings (type, number, degree of destruction): -

Other damage (forests, communications, etc.): -

REMARKS (rescue work, former history of avalanches, etc.)

The accident site was a known avalanche path. The victim was recovered alive by his companion at approximately 1840 hrs. The companion left the victim at the site and went for help, but was unable to reach help until 0715 on 20 March. Rescue party returned to find victim dead.

Attach photographs and/or sketches if possible. *Please use metric system

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The Director,
Department of Environmental Sciences,

Department of Environmental Sciences

Report on Destructive Avalanche

COUNTRY: C a n a d a 1977
XXXXXXXXXXXXXXX
Serial No.: 77-05

Name and address of reporter: C. Simon L. Ommanney, Glaciology Division, Inland Waters
Directorate, Fisheries & Environment Canada, Ottawa, Ontario, K1A 0E7

LOCATION: (Name of district, nearest town or village, mountain area, avalanche path)
Penticton, British Columbia; Apex Mountain
Latitude: 49°23' N Longitude: 119°54' W Altitude: 2100 m

DATE: 21 March 1977, Time: 1300 = 2100 (GMT)

DATA ON AVALANCHE:

Type (International classification): Soft slab; new snow fracture; dry; channelled;
powder components; dry, rounded clods; clean. Orientation: North east

Dimensions*

Starting zone: Altitude: 2100 m Width: 27 m Depth of fracture: 0.4 - 0.6 m
Avalanche path: Length: 150 m Width: 14 m Average slope: 38°
Deposit: Maximum depth: 1.5 m Volume: 600 m³

Causes

Snow structure: 60 cm depth hoar plus strong crust plus 50 cm soft snow
Weather (snowfall, wind, temperature): 27 cm new snow in 3 days; wind moderate south west;
temperature -1°C at 0800 hours, estimated +3°C at 1300 hours.
Triggering mechanism (if known): Skier. Avalanche fractured in the new snow on the crust.
Broke to the ground in the lower part of the path.

CASUALTIES AND DAMAGE:

Number of persons killed: 1; injured: 1; rescued unharmed: 0
Damage to buildings (type, number, degree of destruction): None
Other damage (forests, communications, etc.):

REMARKS (rescue work, former history of avalanches, etc.)
A party of three skied the avalanche path near a ski area. One person was not caught
and alerted the rescuers. The dead person was found 30 minutes after burial with the
head 1.5 m deep in the snow. The injured person was found at the top of the avalanche
deposit.

Attach photographs and/or sketches if possible. * Please use metric system

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Department of Environmental Sciences

Report on Destructive Avalanche

COUNTRY: CANADA

Winter 19.../19.77

Serial No.: 77-06

Name and address of reporter: C. Simon L. Ommanney, Glaciology Division, Inland Waters
Directorate, Fisheries & Environment Canada, Ottawa, Ontario, K1A 0E7

LOCATION: (Name of district, nearest town or village, mountain area, avalanche path)

Banff National Park, Sunshine Area, Quartz Ridge

Latitude: 51° 04' N Longitude: 115° 48' W Altitude: 2400 m

DATE: 27 March 1977; Time: 1415 = 2115 (GMT)

DATA ON AVALANCHE:

Type (International classification): A3, B3, C1, D1, E2, F3, G1, H1

Orientation: East

Dimensions*

Starting zone: Altitude: 2180 - 2340 m Width: 300 m Depth of fracture: 0.85 m

Avalanche path: Length: 320 m Width: 300 m (irreg.) Average slope: 29°

Deposit: Maximum depth: 3.3 m Volume: not observed

Causes

Snow structure: Surface hoar overlain by old settled and new snow

Weather (snowfall, wind, temperature): moderate snowfall, 8 cm new snow, wind 52 km/h
whiteout conditions

Triggering mechanism (if known): Large group of cross country skiers; fracture at
3 different elevations

CASUALTIES AND DAMAGE:

Number of persons killed: 1 ; injured: 4 ; rescued unharmed: 8

Damage to buildings (type, number, degree of destruction):

Other damage (forests, communications, etc.):

REMARKS (rescue work, former history of avalanches, etc.)

Extreme avalanche hazard prevailed in all areas. 4 persons were recovered
alive by the guide of the group. The dead person was found 30 minutes after
being buried.

Attach photographs and/or sketches if possible.

* Please use metric system

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SCIENTIFIC AND CULTURAL ORGANIZATION

Department of Environmental Sciences

Report on Destructive Avalanche

COUNTRY: CANADA

Winter 19.../1977

Serial No.: 77-07

Name and address of reporter: C. Simon L. Ormanney, Glaciology Division, Inland Waters
Directorate, Fisheries & Environment Canada, Ottawa, Ontario, K1A 0E7

LOCATION: (Name of district, nearest town or village, mountain area, avalanche path)

Banff National Park; Lake Louise; Flush Bowl

Latitude: 51° 26' N Longitude: 116° 06' W Altitude: 2650 m

DATE: 30 March 1977 Time: 1230 = 1930 (GMT)

DATA ON AVALANCHE:

Type (International classification): A4, B3, C1, D2, E2, F2, G1, H1
Orientation: NW

Dimensions*

Starting zone: Altitude: 2310 m Width: 45 m Depth of fracture: 0.86 m

Avalanche path: Length: 245 m Width: 80 m Average slope: 35°

Deposit: Maximum depth: 2 m Volume: not observed

Causes

Snow structure: Base of depth hoar overlain by surface hoar; top layers of old settled snow

Weather (snowfall, wind, temperature): Overcast, no new snow, wind NW 25 km/h, temperature + 2°C

Triggering mechanism (if known): skier (victim)

CASUALTIES AND DAMAGE:

Number of persons killed: 1; injured: ; rescued unharmed: 1

Damage to buildings (type, number, degree of destruction): -

Other damage (forests, communications, etc.): -

REMARKS (rescue work, former history of avalanches, etc.)

The accident occurred at a location marked as avalanche area beyond the marked
ski area boundary. Victim was located 45 min after avalanche occurred, buried
below 0.35 m of deposition. Approx. 30 skiers had previously skied in the
Flush Bowl area.

Attach photographs and/or sketches if possible.

*Please use metric system

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Department of Environmental Sciences

Report on Destructive Avalanche

COUNTRY: CANADA

~~XXXXXX~~ / 1977

Serial No.: 77-08

Name and address of reporter: C. Simon L. Ommanney, Glaciology Division, Inland Waters
Directorate, Fisheries & Environment Canada, Ottawa, Ontario, K1A 0E7

LOCATION: (Name of district, nearest town or village, mountain area, avalanche path)
British Columbia, Mount Robson, Kain Face

Latitude: 53°07' N Longitude: 119°09' W Altitude: 3955 m

DATE: 30 July 1977 Time: 1700 hrs = (GMT)

DATA ON AVALANCHE:

Type (International classification): Unspecified, unstable wet snow

Orientation:

Dimensions* Information not available

Starting zone: Altitude: Width: Depth of fracture:

Avalanche path: Length: Width: Average slope:

Deposit: Maximum depth: Volume:

Causes

Snow structure: Unspecified

Weather (snowfall, wind, temperature): Conditions described as poor

Triggering mechanism (if known): Probably natural as avalanche descended on party but slope
above may have been weakened during descent.

CASUALTIES AND DAMAGE:

Number of persons killed: 0 ; injured: 2 ; rescued unharmed: 2

Damage to buildings (type, number, degree of destruction):

Other damage (forests, communications, etc.):

REMARKS (rescue work, former history of avalanches, etc.)

Mountaineering party with some inexperienced members necessitating slow descent
and hence greater exposure to avalanche danger.

Attach photographs and/or sketches if possible.

*Please use metric system

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Unesco,

Department of Environmental Sciences

Report on Destructive Avalanche

COUNTRY: CANADA

~~Winter 1977~~ / 1977

Serial No.: 77-09

Name and address of reporter: C. Simon L. Ormanney, Glaciology Division, Inland Waters
Directorate, Fisheries & Environment Canada, Ottawa, Ontario, K1A 0E7

LOCATION: (Name of district, nearest town or village, mountain area, avalanche path)

Yoho National Park, President Col

Latitude: 51° 30' Longitude: 116° 33' Altitude: 3130 m

DATE: 9 October 1977 Time: 1010 = 1710 (GMT)

DATA ON AVALANCHE:

Type (International classification): A3, B2, C1, D1, #2, F4, G1, H1

Orientation: NNE

Dimensions*

Starting zone: Altitude: 2430 m Width: 10 m Depth of fracture: 20 cm

Avalanche path: Length: 90 m Width: 10 m Average slope: 35°

Deposit: Maximum depth: 10 m Volume: no observation
(in bergschrund)

Causes

Snow structure: unconsolidated new snow sliding on old firm

Weather (snowfall, wind, temperature): Overcast, light snowfall, wind moderate southwest

Triggering mechanism (if known): mountain climber (victim)

CASUALTIES AND DAMAGE:

Number of persons killed: 1; injured: ; rescued unharmed: 2

Damage to buildings (type, number, degree of destruction): -

Other damage (forests, communications, etc.): -

REMARKS (rescue work, former history of avalanches, etc.)

Victim was swept into the bergschrund by the avalanche and covered by approx.
10 m. loose deposition. Companions were unable to recover the victim quickly
due to a lack of shovels.

Attach photographs and/or sketches if possible.

* Please use metric system

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